

REMARKS

Claims 1 and 12 have been amended. Claim 1 was amended to emphasize that the repeller plates are heated indirectly by radiation and remain uncharged until pulsing takes place. Support for the amendment to claim 1 is found in paragraph [0043]: “[r]adiative heat from the tantalum wire 21 indirectly heats the repeller plate 14 and then the grids 15.” Support is also found in paragraph [0017] wherein it is explained that the invention prevents “unstable charging due to adhesion of organics on a repeller plate...”, and in paragraph [0011] where the detrimental effect of charging prior to pulsing on the ion beam is explained.

The examiner has rejected claims 1, 3, and 4 under 35 U.S.C. § 102(e) as being anticipated by Andrien, Jr. et al. (hereinafter “Andrien”) U.S. Patent No. 6,600,155. Reconsideration is respectfully requested.

Andrien is directed to a TOF mass spectrometer that, notwithstanding being an orthogonal acceleration device, does not anticipate Applicants’ claims. In the Andrien TOF-MS, a reverse bias field is applied to direct ions to a “collecting electrode surface”. By contrast, the Applicants’ device is designed so that the analyte ions are not disturbed by an unintentional charge on the repeller plate. While Andrien suggests heating the collecting electrode, the heating means is not suggested. It would not be necessary for the purposes of Andrien to heat the collector plate by a radiation source since an electrical charge to create the reverse bias is already contemplated. Any electrical charge resulting from direct heating of the collecting electrode would be masked by the intentionally applied bias. It is essential that no charge be applied to the repeller electrodes in the Applicants’ mass spectrometer prior to pulsing and heating, therefore, heating must be indirectly provided by radiation.

The examiner has rejected claims 2 and 5-12 as obvious under 35 U.S.C. § 103(a) citing only the Andrien reference. The examiner urges that the methods of indirect

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heating set forth are well known in uncited prior art. However, nothing in Andrien suggests the need for indirect heating by radiation. The need must first be recognized before one skilled in the art would begin to contemplate means for providing indirect heating by radiation.

With regard to claim 2, the examiner suggests once the impeller plate is indirectly heated, it would follow inherently that the focusing lenses, slit, and grids would also be heated. This is not necessarily the case since it would depend upon the arrangement and placement of the various elements. In any event, claim 2 is nonobvious for at least the reason that claim 1 from which it depends is nonobvious as explained above.

In view of the foregoing amendments and remarks, it is urged this case is now in condition for allowance.

Respectfully submitted,

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